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## Hay Days: Management of flood plain meadows for sustainable productivity

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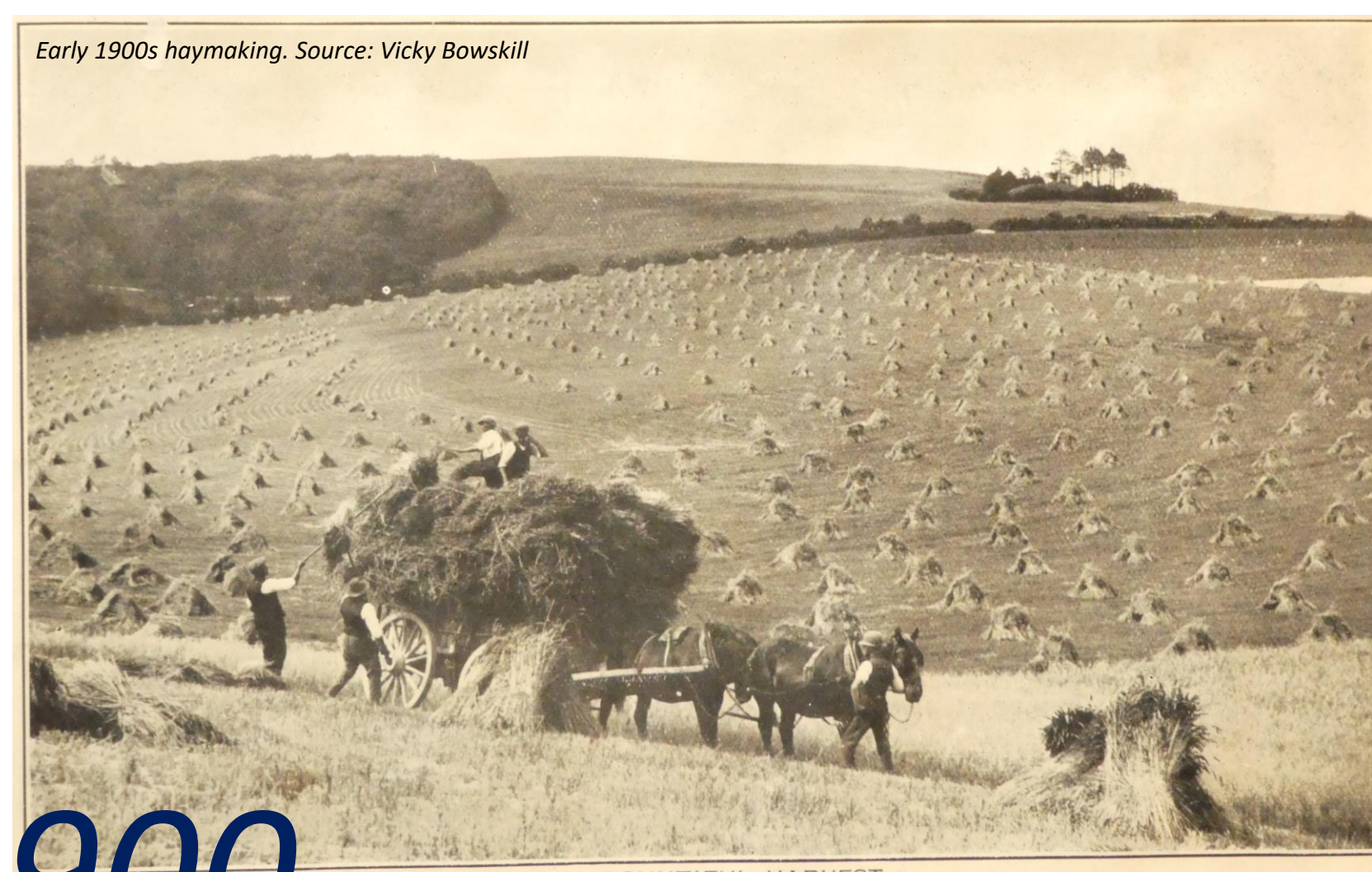
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1

Meadows are not just about wildflowers, they're also about hay as an agricultural crop. Meadow species are uniquely adapted to the annual cycle of summer hay cutting and aftermath grazing in the autumn.

Since World War II, some 97% of the UK's precious wildflower meadows have been lost, due in part to agricultural intensification. Summer haymaking has changed both in scale and timing, having a very different impact on sensitive meadow species.



1900



present

2

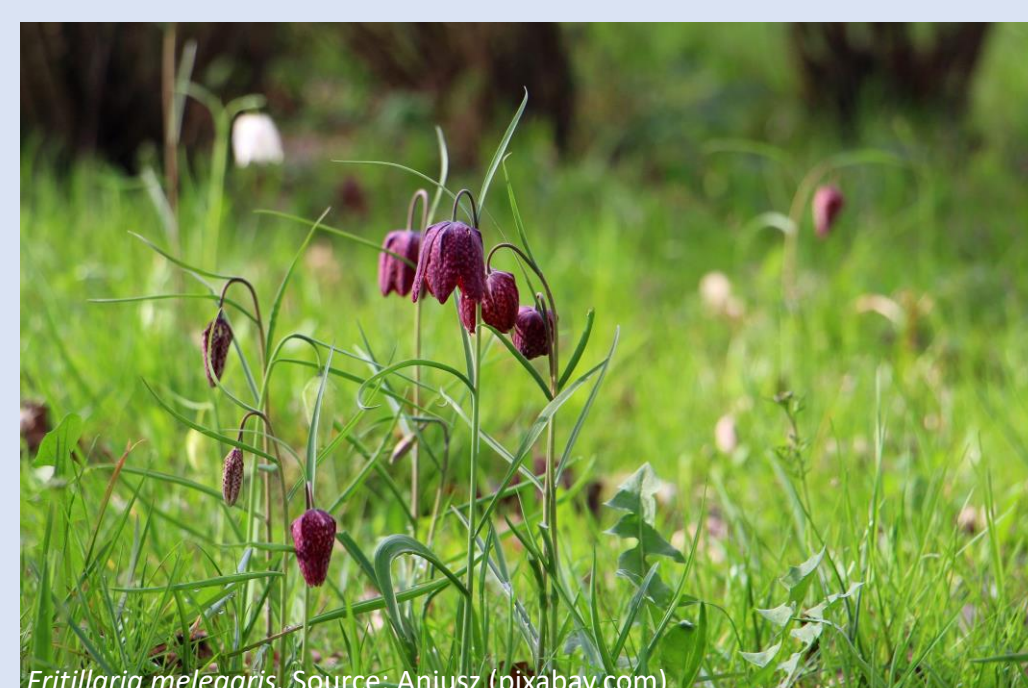
## The problem with dates

- Date restrictions under agri-environment schemes designed for conservation gains often conflict with other agricultural management goals.
- A later cut is perceived to make a lower quality crop, though this is based on limited data for floodplain meadows.
- Missed hay cuts mean rising soil nutrients and falling botanical diversity.
- With a changing policy landscape and focus on sustainable food production, now is the time to see how hay meadows can fit into a sustainable nature friendly farming future.

3

## Floodplain meadows

- High botanical diversity, up to 40 species per m<sup>2</sup>, with associated invertebrate, bird, mammal and reptile communities. Includes rare iconic species, such as snake's head fritillary (*Fritillaria meleagris*). This vegetation community has evolved under a regime of summer hay cutting and aftermath grazing and now depends on it.
- Naturally fertile, with nutrient inputs from flood deposited silts. Represents a valuable low-input source of forage for livestock.
- Also provides natural flood alleviation, soil carbon storage, historic and cultural value.
- Internationally important habitat type that is threatened by land use change, development, agricultural intensification and habitat fragmentation.



Fritillaria meleagris. Source: Amuz (pixabay.com)

5

## Research priorities

Stakeholder feedback via a questionnaire for land managers, combined with a literature review, has demonstrated a strong need for more information on how hay cutting date affects:

- Botanical diversity
- Mineral content of aboveground biomass
- Concentration of plant secondary metabolites with known anthelmintic effect

To ensure this fieldwork data has impact, the study will also explore how aboveground nutrient dynamics, biomass yield and presence of medicinal herbs affect the perception and value of haymaking on floodplain meadows as part of a sustainable agricultural system.

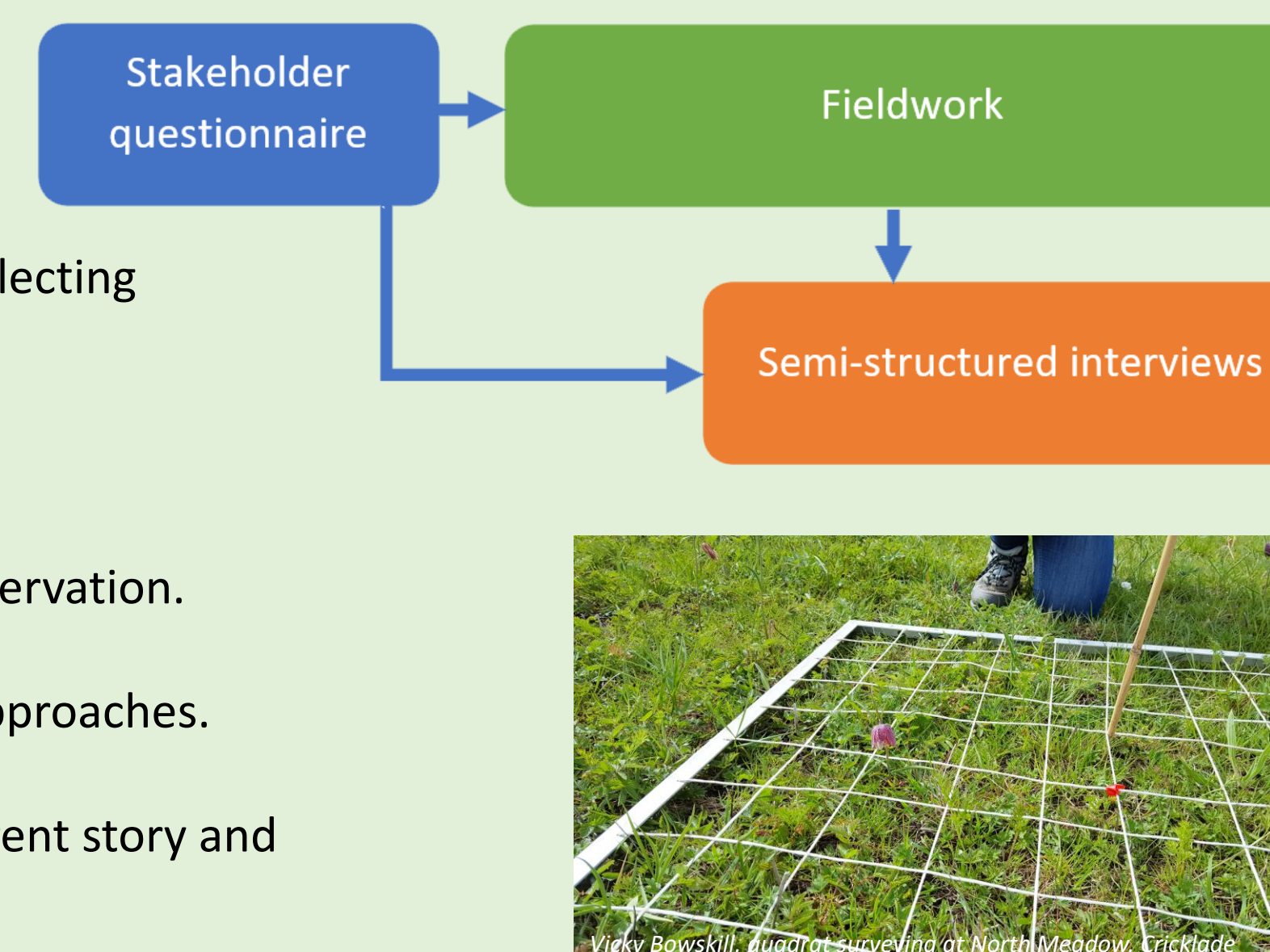
6

## Mixed methods study design

This fully integrated design combines both quantitative and qualitative data, with stakeholder feedback informing fieldwork and vice versa. In addition to collecting quantitative field data, it aims to:

- Understand the drivers for land management decisions.
- Find the critical factors that link agricultural production and biodiversity conservation.
- Explore the acceptability to various stakeholders of different management approaches.

The output will be a robust dataset with stakeholder buy-in that can tell a coherent story and has potential to influence policy and practice.



7

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